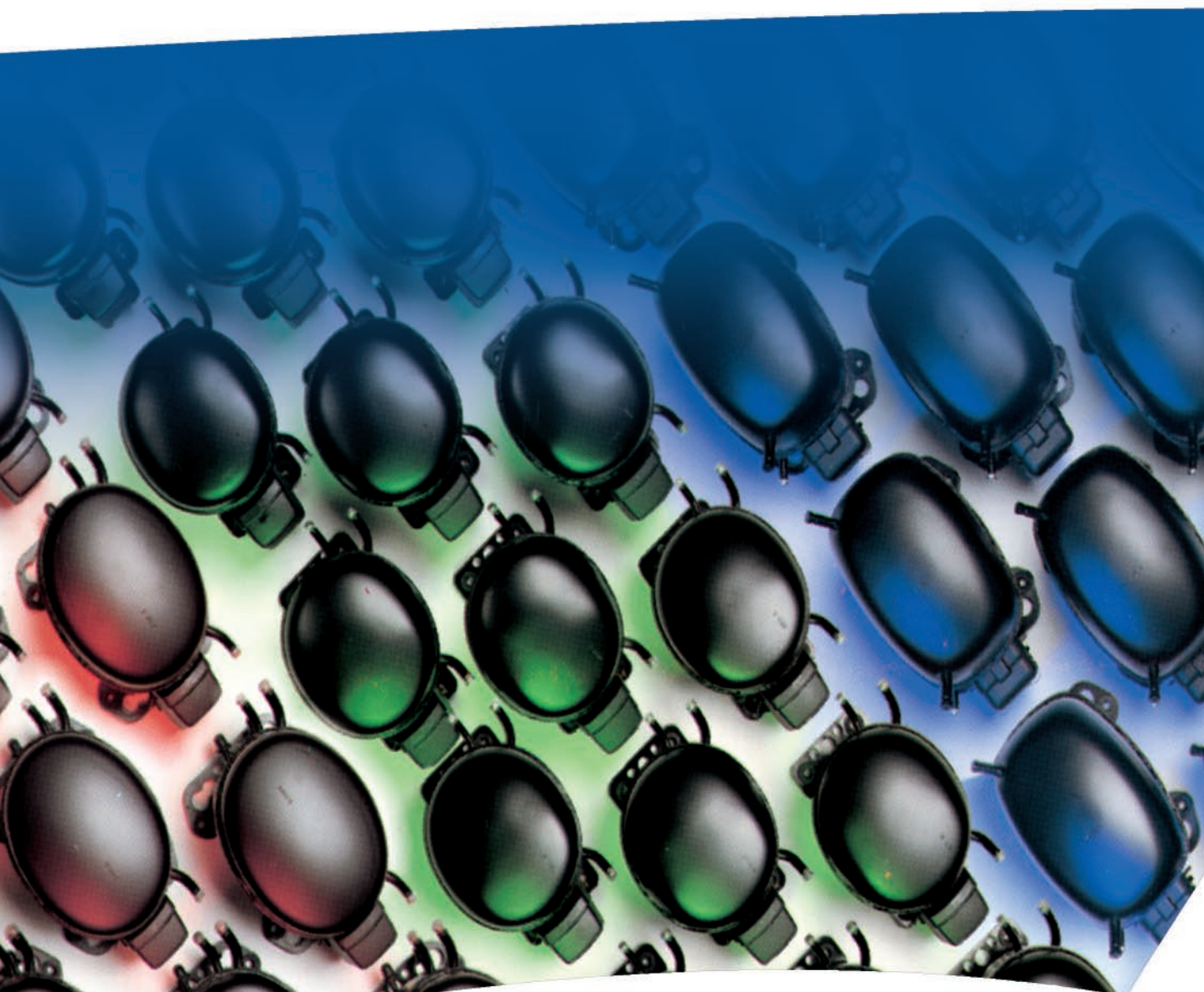


MAKING MODERN LIVING POSSIBLE

Danfoss



R426A/R401A/R401B
R409A/R409B • R22

Danfoss Service Compressors

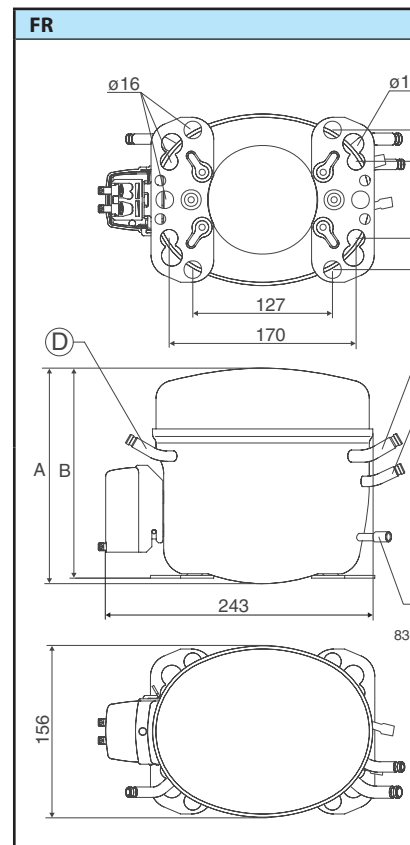
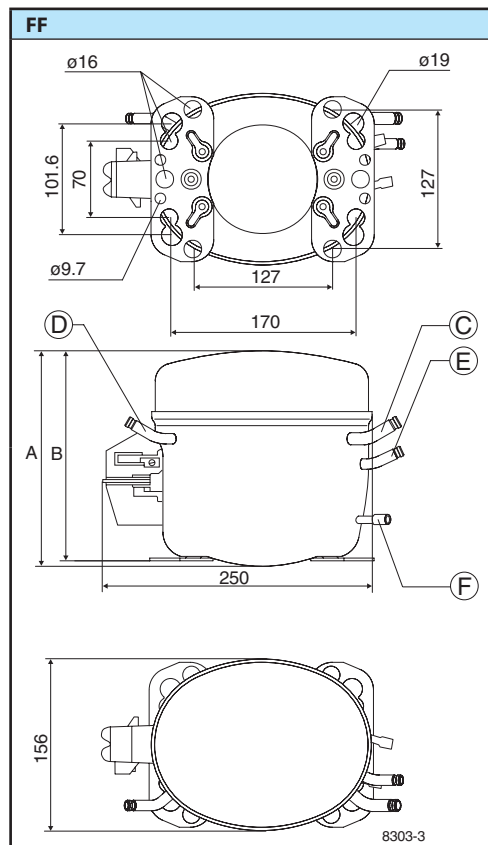
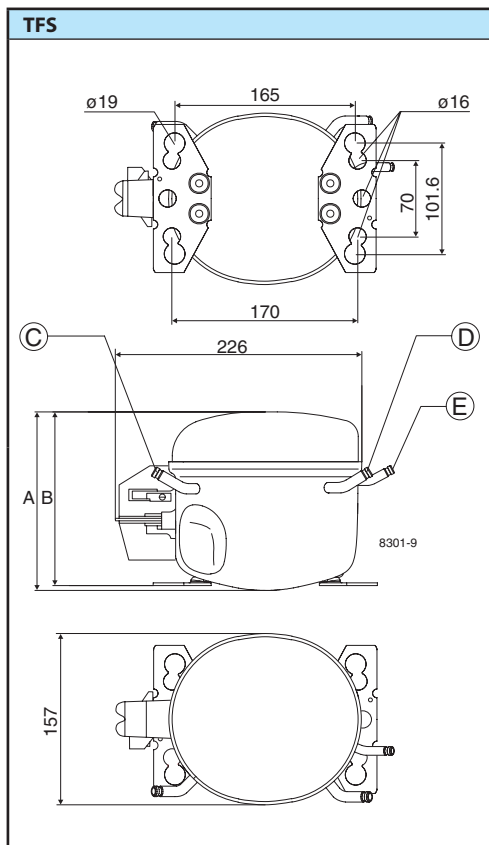
220-240 V • 50 Hz & 60 Hz

115 V • 60 Hz

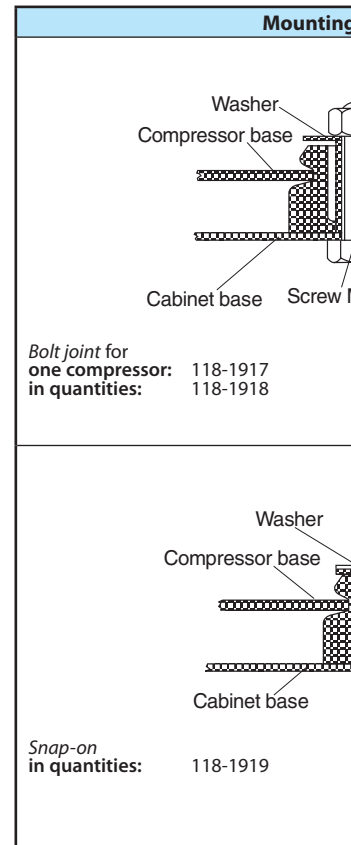
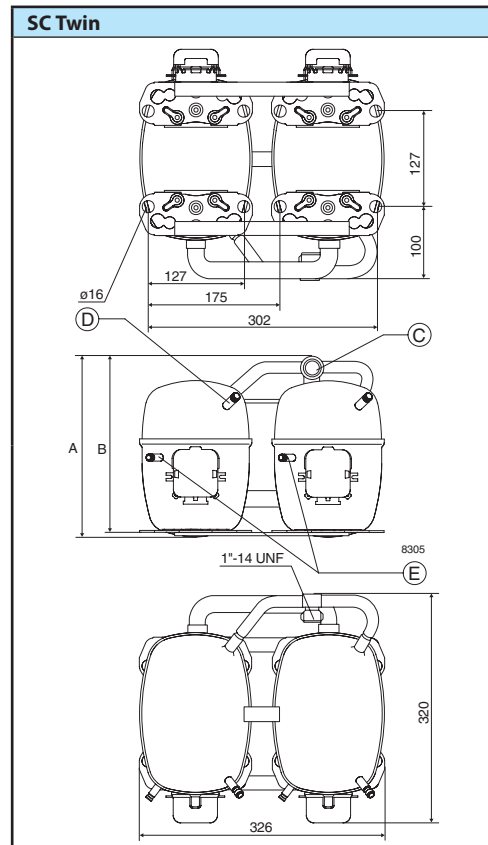
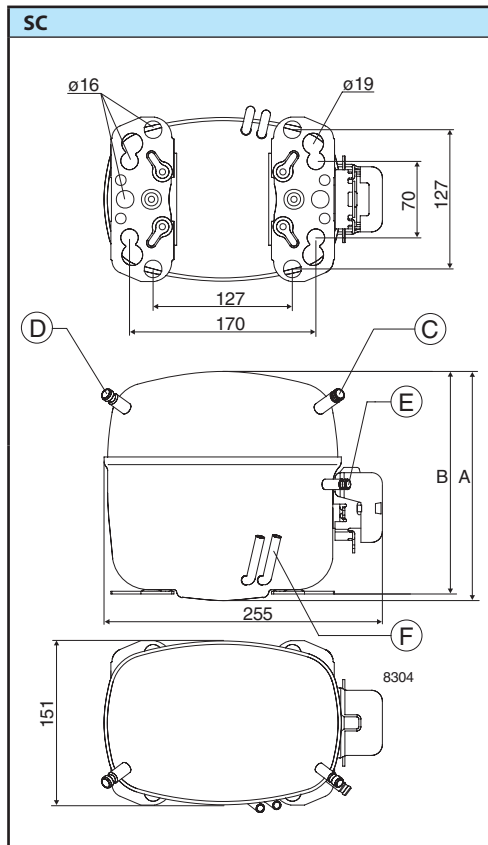
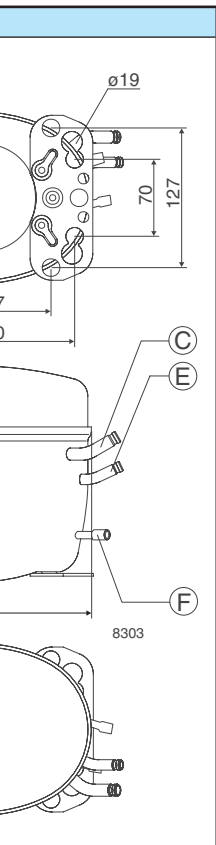
REFRIGERATION &
AIR CONDITIONING DIVISION

Quick reference

Refrigerant	Voltage	Application	Compressor	Code numbers	EN 12900 (CECOMAF)															ASHRAE				
					Capacity															Power consumption	Capacity			
					[W]															[W]	[W]			
					Evaporating temperature [°C]															Evaporating temperature [°C]				
-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	-25	5	-23.3	7.2					
R426A / R401A / R401B / R409A / R409B	220V	LBP	TFS3ST	102U2120			32	45	60	65	78	98	120							80		78		
			TFS4ST	102U2125			42	60	79	89	103	128	160							95		107		
			TFS5ST	102U2130			62	85	104	115	138	175	215							125		138		
			FF7.5ST	103U2731			74	91	118	130	155	202	260							147		157		
			FF8.5ST	103U2831			83	109	145	159	190	246	311							171		192		
	220V	LBP HBP	FR6S	103U2630			51	74	105	116	142	187	239	277	298	364	438	473	519	607	130	243	141	506
			FR7.5S	103U2730			74	91	118	130	155	202	260	302	327	404	492	533	590	697	150	280	157	570
			FR8.5S	103U2830			81	106	140	155	185	239	302	350	375	458	550	594	652	764	171	326	186	635
			FR10S	103U2930			93	117	152	166	198	257	327	379	408	502	606	656	723	851	209	370	201	702
			FR11S	103U2130			128	156	200	218	258	331	419	485	522	640	774	838	922	1086	253	477	264	896
			SC12S	104L2610			97	148	217	244	302	403	520	608	655	806	973	1052	1157	1357	258	483	295	1125
			SC15S	104L2880			148	200	273	303	368	485	624	727	785	967	1171	1268	1398	1645	305	582	366	1356
			SC18S	104L2180			178	232	311	344	415	545	698	813	876	1080	1307	1416	1560	1838	385	717	416	1515
			SC21S	104L2380			178	245	342	382	468	623	806	944	1020	1262	1532	1660	1832	2161	421	742	462	1776
	115V	LBP HBP	FR7.5S	103U1740			81	112	151	166	197	250	310	355	378	464	566	612	678	801	165	340	200	654
			FF8.5SX	103U1840			90	124	167	184	219	280	350	401	428	526	632	683	750	878	194	390	222	738
			FF10SX	103U1970			97	130	174	192	230	298	377	436	469	575	695	754	831	978	235	450	231	807
	R22	220V	LBP	SC10C	104L2516	62	105	163	235	325	359	433	561	710	821	883					300		341	
				SC12C	104L2674	77	136	210	303	415	458	550	708	893	1031	1107					380		456	
				SC15CM	104L2848	107	178	268	377	510	561	668	855	1032	1233	1322					460		548	
SC18CM				104L2120	102	201	313	440	586	640	754	948	1172	1337	1428					495		637		
SC10/10C				104L4076	124	211	325	470	649	719	865	1121	1420	1643	1765					600		680		
SC12/12C				104L4077	155	272	421	605	830	916	1099	1417	1786	2061	2213					760		910		
SC15/15CM				104L4079	215	357	535	754	1020	1122	1337	1710	2143	2466	2643					921		1095		
SC18/18CM				104L8081	204	402	625	879	1171	1281	1508	1897	2344	2674	2855					997		1272		
220V		HBP	SC10D	104L2529								507	654	769	833	1046	1295	1417	1584	1915		545		1267
			SC10D (oc)	104L2517								507	654	769	833	1046	1295	1417	1584	1915		545		1267
			SC12D	104L2694								645	845	991	1071	1326	1615	1754	1942	2312		660		1594
			SC12D (oc)	104L2684								645	845	991	1071	1326	1615	1754	1942	2312		660		1594
			SC15D	104L2859								786	1035	1214	1312	1624	1975	2143	2371	2818		714		1942
			SC15D (oc)	104L2839								786	1035	1214	1312	1624	1975	2143	2371	2818		714		1942
			SC10/10D	104L4084								1014	1309	1537	1666	2091	2590	2834	3168	3830		1090		2532
SC12/12D	104L4085								1289	1690	1982	2141	2651	3229	3508	3884	4625		1320		3185			
SC15/15D	104L4086								1573	2069	2428	2624	3247	3950	4284	4743	5636		1428		3880			

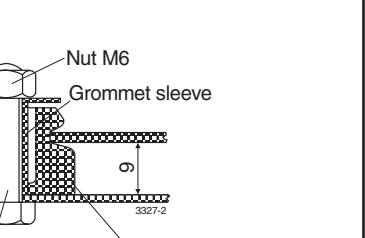


ASHRAE				Dis- place- ment	Recommended compressor cooling at ambient temperature									Voltage and frequen- cies	Electrical Equipment					Compressor		
Capacity [W]		Power consumption [W]			32°C			38°C			43°C				LST (RSIR)		HST (CSIR)		HST (CSR)		LST/HST	
Evaporating temperature [°C]					LBP	MBP	HBP	LBP	MBP	HBP	LBP	MBP	HBP		PTC Starting device	Starting relay	Starting relay	Starting capacitor	Starting device		Cord relief	Cover
-23.3	7.2	-23.3	7.2		[cm ³]	spades			spades			spades										
6.3 mm	6.3 mm	6.3 mm	6.3 mm	6.3 mm																		
78		83		3.13	S			S			S							117U0349	117U1023	TFS3ST		
107		100		3.86	S			S			S							117U0349	117U1023	TFS4ST		
138		130		5.08	S			S			S							117U0349	117U1023	TFS5ST		
157		155		6.93	S			S			F ₁							117U0349	117U1023	FF7.5ST		
192		179		7.95	F ₁			F ₁			F ₁							117U0349	117U1023	FF8.5ST		
141	506	137	259	6.24	S	S	S	S	S	S	F ₂	F ₂	F ₂	4/5/6	103N0011		117U6000	117U5015		103N1010	103N2010	FR6S
157	570	160	285	6.93	S	S	S	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	4/5/6	103N0011		117U6001	117U5015		103N1010	103N2010	FR7.5S
186	635	180	316	7.95	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	4/5/6	103N0011		117U6015	117U5015		103N1010	103N2010	FR8.5S
201	702	218	380	9.05	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	4/5/6	103N0011		117U6010	117U5015		103N1010	103N2010	FR10S
264	896	262	495	11.15	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	4/6	103N0011		117U6010	117U5015		103N1010	103N2010	FR11S
295	1125	270	497	12.87	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	4/5/6	103N0002		117U6003	117U5017		103N1004	103N2009	SC12S
366	1356	320	602	15.28	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	4/5/6			117U6005	117U5017		103N1004	103N2009	SC15S
416	1515	402	741	17.69	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	4/5/6			117U6011	117U5017		103N1004	103N2009	SC18S
462	1776	437	768	20.95	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	4/6					117-7010	103N1004	103N2009	SC21S
200	654	173	360	6.93	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	8	103N0003		117U6011	117U5025		103N1010	103N2010	FR7.5S
222	738	203	410	7.95	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	8			117U4060	117U5041		117U0349	117U1023	FF8.5SX
231	807	245	470	9.05	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	8			117U4061	117U5040		117U0349	117U1023	FF10SX
341		325		10.29	F ₂									4			117U6003	117U5017		103N1004	103N2009	SC10C
456		414		12.87	F ₂									4			117U6005	117U5017		103N1004	103N2009	SC12C
548		489		15.28	F ₂									7			117U6019	117U5017		103N1004	103N2009	SC15CM
637		533		17.69	F ₂									7					117-7012	103N1004	103N2009	SC18CM
680		650		2x10.29	F ₂									4			117U6003	117U5017		103N1004	103N2009	SC10/10C
910		828		2x12.87	F ₂									4			117U6005	117U5017		103N1004	103N2009	SC12/12C
1095		978		2x15.28	F ₂									7			117U6019	117U5017		103N1004	103N2009	SC15/15CM
1272		1066		2x17.69	F ₂									7					117-7012	103N1004	103N2009	SC18/18CM
	1267		612	10.29		F ₂	F ₂							4			117U6005	117U5017		103N1004	103N2009	SC10D
	1267		612	10.29		F ₂	F ₂							4			117U6005	117U5017		103N1004	103N2009	SC10D (oc)
	1594		754	12.87		F ₂	F ₂							4			117U6011	117U5017		103N1004	103N2009	SC12D
	1594		754	12.87		F ₂	F ₂							4			117U6011	117U5017		103N1004	103N2009	SC12D (oc)
	1942		826	15.28		F ₂	F ₂							4					117-7010	103N1004	103N2009	SC15D
	1942		826	15.28		F ₂	F ₂							4					117-7010	103N1004	103N2009	SC15D (oc)
	2532		1224	2x10.29		F ₂	F ₂							4			117U6005	117U5017		103N1004	103N2009	SC10/10D
	3185		1508	2x12.87		F ₂	F ₂							4			117U6011	117U5017		103N1004	103N2009	SC12/12D
	3880		1652	2x15.28		F ₂	F ₂							4					117-7010	103N1004	103N2009	SC15/15D



Dimensions						
Height [mm]		Connectors location/I.D. [mm]				
A	B	Suction C	Process D	Discharge E	Oil cooler F	
173	169	6.5	6.5	5.0		
173	169	6.5	6.5	5.0		
173	169	6.5	6.5	5.0		
196	191	8.2	6.5	6.5		
196	191	8.2	6.5	6.5		
196	191	8.2	6.2	6.2		
196	191	8.2	6.2	6.2		
196	191	8.2	6.2	6.2		
196	191	8.2	6.2	6.2		
196	191	8.2	6.2	6.2		
209	203	8.2	6.2	6.2		
209	203	10.2	6.2	6.2		
219	213	10.2	6.2	6.2		
219	213	10.2	6.2	6.2		
196	191	8.2	6.2	6.2		
196	191	8.2	6.5	6.5		
196	191	8.2	6.5	6.5		
199	193	8.2	6.2	6.2		
209	203	8.2	6.2	6.2		
209	203	10.2	6.2	6.2		
219	213	10.2	6.2	6.2		
249	244	12	6.2	6.2		
249	244	12	6.2	6.2		
259	254	12	6.2	6.2		
259	254	16	6.2	6.2		
199	193	10.2	6.2	8.2		
199	193	10.2	6.2	8.2	8.2	
209	213	10.2	6.2	8.2		
209	213	10.2	6.2	8.2	8.2	
209	213	10.2	6.2	8.2		
209	213	10.2	6.2	8.2	8.2	
249	244	12	6.2	8.2		
259	254	12	6.2	8.2		
259	254	16	6.2	8.2		

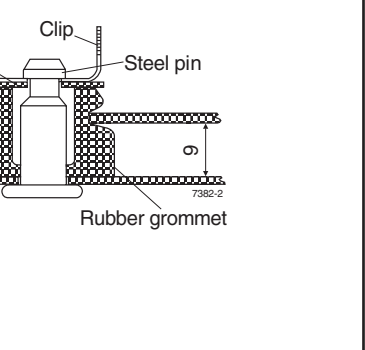
Accessories



M6 x 25 Rubber grommet



Rubber grommet



Rubber grommet

R426A/R401A/R401B/R409A/R409B • R22 • 220-240 V • 50 Hz & 60 Hz

Model designation				
Compressor design	Optimization level	Compressor size	Application range	Start characteristics
TF			S R426A R401A/R401B R409A/R409B LBP/HBP	
FR, FF	Blank Standard energy level	Nominal displacement in cm ³	ST R426A R401A/R401B R409A/R409B LBP, tropical	Blank => universal (principal rule)
SC	S Semi-direct intake		C R22 LBP	X = HST characteristics (expansion valve)
SC Twin			CM R22 LBP	
			D R22 HBP	

Examples

TF	S	5	ST	
FF		8.5	S	X
SC		12	C	

Accessories for SC Twin

SC10/10, SC12/12 and SC15/15:	
Service valve for 12 mm tube	118-7350
Solder connector for 12 mm tube	104B0584
SC15/15D and SC18/18:	
Service valve for 16 mm tube	118-7351
Solder connector for 16 mm tube	118-7405
SC10/10, SC12/12, SC15/15 and SC18/18:	
Seal ring for service valve and solder connector	118-3638
Time-delay relay	117N0001
Check valve (to be used with time-delay relay)	020-1014

Optional IP24 equipment for SC compressors

Danfoss now offers additional SC accessories, which provide a better IP protection class for a major part of the SC compressor models. All SC models for 220-240V/50Hz or 208-230V/60Hz and CSIR motor can be IP upgraded.

The equipment consists of one additional part, the so called "back cover", and a special starting capacitor. Both are used instead of the normal starting capacitor.

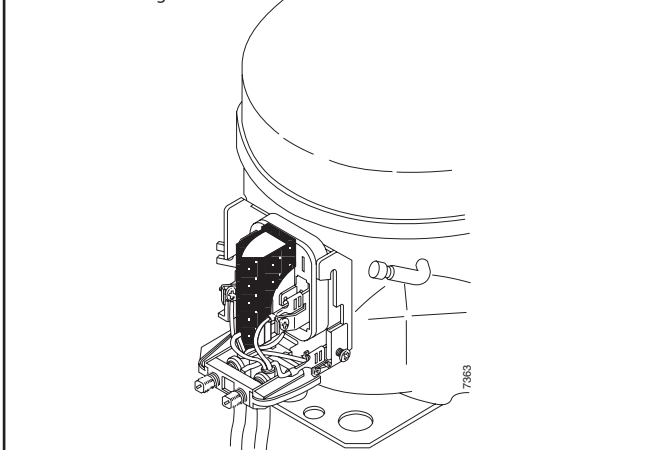
When using this equipment, the protection class is increased to IP24, i.e. the compressor and its electrical parts are splash-proof.

Code number	Description
103N2020	Back cover
117U5117**	IP24 starting capacitor 80µF

**replaces standard capacitor 117U5017

Protection Screen for PTC

Note: To fulfil the requirements of EN 60355-2-34 the protection screen 103N0476 must be applied to the PTC starting device.



Applications

- LBP:** Low Back Pressure
- MBP:** Medium Back Pressure
- HBP:** High Back Pressure

Motor types

- RSIR:** Resistant Start Induction Run
- RSQR:** Resistant Start Capacitor Run
- CSIR:** Capacitor Start Induction Run
- CSR:** Capacitor Start Run

Starting devices

- LST:** Low Starting Torque
 - HST:** High Starting Torque
- LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
- HST consisting of relay and starting capacitor, is used for expansion valve control or for capillary tube control without pressure equalizing.

Test conditions EN 12900 (CECOMAF)

- Application: **R426A, R401A/B, R409A/B**
- Condensing temperature: 55°C
- Ambient temperature: 32°C
- Suction gas temperature: 32°C
- No subcooling
- 220 V / 50 Hz
- 115 V / 60 Hz

Test conditions EN 12900 (ASHRAE)

- Application: **R22**
- Condensing temperature: 45°C
- Ambient temperature: 32°C
- Suction gas temperature: 32°C
- No subcooling
- 220 V / 50 Hz

Test conditions ASHRAE

- Application: **LBP**
- Condensing temperature: 54.4°C
- Ambient temperature: 32.2°C
- Suction gas temperature: 32.2°C
- Liquid temperature: 32.2°C
- 220 V / 50 Hz
- 115 V / 60 Hz

Test conditions ASHRAE

- Application: **HBP**
- Condensing temperature: 54.4°C
- Ambient temperature: 35°C
- Suction gas temperature: 35°C
- Liquid temperature: 46.1°C
- 220 V / 50 Hz
- 115 V / 60 Hz

Conversion of capacity

If a stated capacity is required at 32°C liquid temperature, multiply the capacity with one of the following factors:

R22
From 45°C to 32°C liquid: 1.11

Conversion of units

- 1 Watt = 0.86 kcal/h
- 1 Watt = 3.41 Btu/h

Compressor cooling

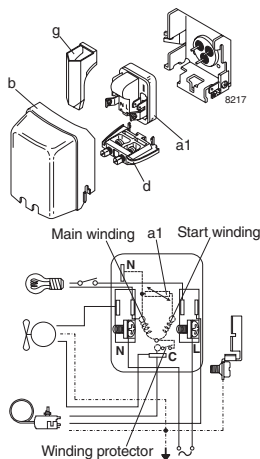
- S = Static cooling normally sufficient
- O = Oil cooling
- F1 = Fan cooling 1.5 m/s (compressor compartment temp. equal to ambient temperature)
- F2 = Fan cooling 3.0 m/s necessary

Voltages and frequencies

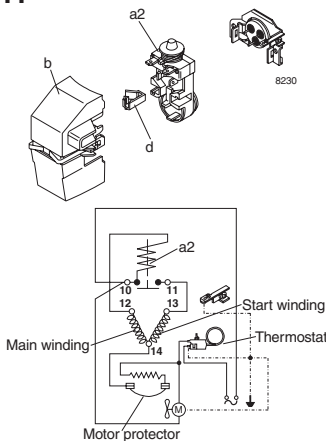
- 1 = 176-254 V, 50 Hz
- 2 = 198-254 V, 60 Hz
- 3 = 176-242 V, 50 Hz
- 4 = 198-254 V, 50 Hz
- 5 = 198-254 V, 60Hz, LBP
- 6 = 187-254 V, 50 Hz, LBP
- 7 = 198-242 V, 50 Hz
- 8 = 103-127 V, 60 Hz

LST - RSIR

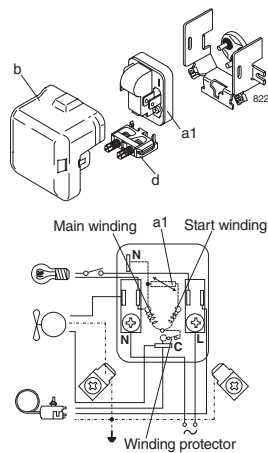
FR



TFS-FF

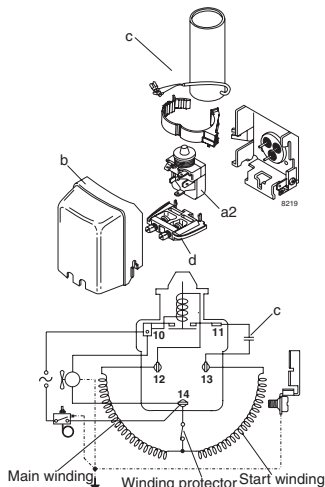


SC

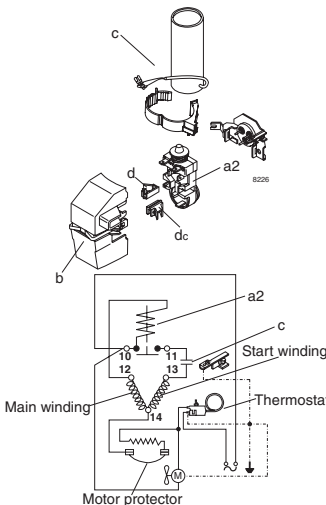


HST - CSIR

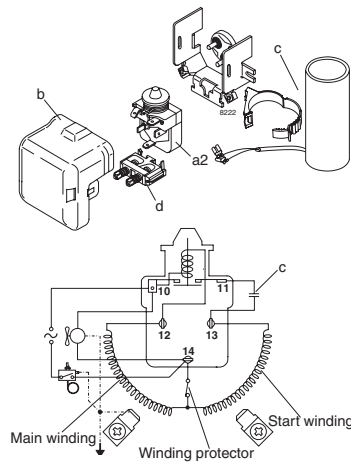
FR



FF

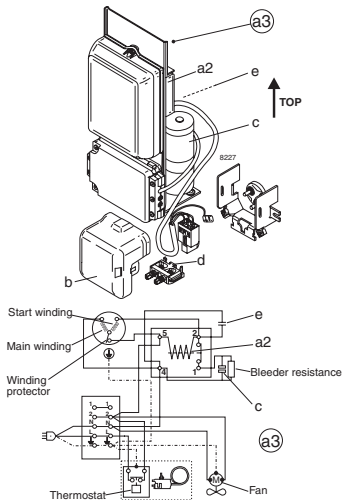


SC



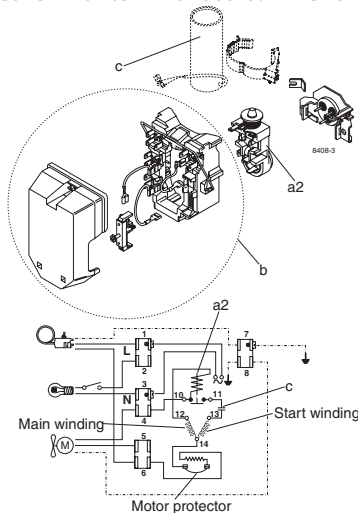
HST - CSR

SC



Alternative electrical equipment for TFS & FF

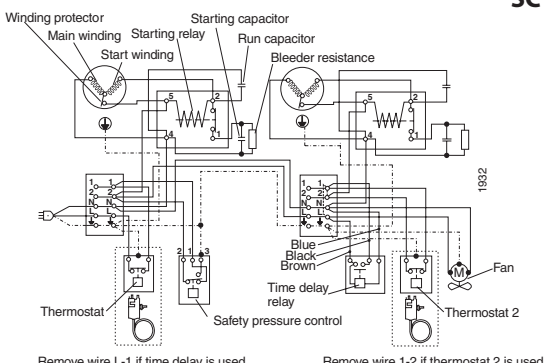
Cover with terminal board: 117U1022



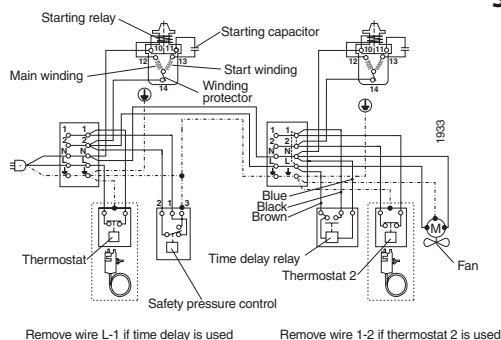
Legend

- a1: PTC starting device
- a2: Starting relay
- a3: Starting device
- b: Cover
- c: Starting capacitor
- d: Cord relief
- dc: Cord relief for capacitor
- g: Protection screen for PTC

HST - CSR



HST - CSIR



SC Twin

Remove wire L-1 if time delay is used Remove wire L-2 if thermostat 2 is used

Remove wire L-1 if time delay is used Remove wire 1-2 if thermostat 2 is used



Service & Repair

Refrigerants R426A, R401A, R401B, R409A and R409B and the compressors for these, are especially suitable for service and repair on refrigerators, freezers and similar products, even if these were originally manufactured for use with the R12 refrigerant.



Applications

Our compressor range will perfectly fit various applications like:



- Refrigerators and freezers
- Laboratory and medical equipment
- Clip-on and condensing units
- Compressed air dryers
- Glass door merchandisers
- Bakery refrigeration equipment
- Low temperature display cabinets
- Vending machines
- Ice making machines
- Slush and frozen beverage makers
- Bottle coolers



Refrigeration Controls programme consists of:

<p>Thermostatic expansion valves</p>	<p>Hermetic filter drier with solid core</p>	<p>Direct or servo operated solenoid valve</p>	<p>Sight glass with moisture indicator</p>